

We claim:

1. A synthetic protein comprising SEQ ID NO:2 or a homolog or a fragment thereof, and wherein said homolog or fragment of SEQ ID NO:2 comprises formula  $X_1VCX_2X_3KX_4R$ ,

(a) wherein said formula corresponds to amino acids 35-42 of SEQ ID NO:2;

(b)  $X_1$  is I or is absent;

(c)  $X_2$  is H, R or K;

(d)  $X_3$  is S, L or another neutral amino acid; and

(e)  $X_4$  is T or A; and

wherein said synthetic protein or homolog or fragment thereof has antisecretory activity when administered after cholera toxin challenge.

2. A composition comprising the synthetic protein or homolog or fragment of Claim 1.

3. The synthetic protein of Claim 1, wherein said synthetic protein consists of SEQ ID NO:2.

4. A composition comprising the synthetic protein of Claim 3.

5. A synthetic polypeptide comprising (a) amino acids 35-42, (b) amino acids 35-46, (c) amino acids 36-51, (d) amino acids 36-80, or (e) amino acids 1-80 of SEQ ID NO:2, or (f) a peptide of formula  $X_1VCX_2X_3KX_4R$  wherein the formula corresponds to amino acids 35-42 of SEQ ID NO:2 of any of polypeptides (a) to (e), and wherein

- (i) X<sub>1</sub> is I or is absent;
- (ii) X<sub>2</sub> is H, R or K;
- (iii) X<sub>3</sub> is S, L or another neutral amino acid; and
- (iv) X<sub>4</sub> is T or A.

6. A composition comprising the synthetic polypeptide of Claim 5. ✓

7. A synthetic polypeptide consisting of a sequence of amino acids selected from the group consisting of (a) amino acids 35-42, (b) amino acids 35-46, (c) amino acids 36-51, (d) amino acids 36-80, and (e) amino acids 1-80 of SEQ ID NO:2.

8. A composition for use in vertebrates including humans comprising an effective amount of the synthetic protein or fragment or homolog of Claim 1, wherein said composition has antisecretory activity. ✓

9. A synthetic composition for use in vertebrates including humans comprising an effective amount of the synthetic polypeptide of Claim 5, wherein said composition has antisecretory activity. ✓

10. A method of using the synthetic protein or homolog or fragment of Claim 1 comprising administering an effective amount of the synthetic protein or homolog or fragment to a vertebrate to induce antisecretory activity. ✓

11. A method of using the synthetic polypeptide of Claim 5 comprising administering an effective amount of the synthetic polypeptide to a vertebrate to induce antisecretory activity.

12. A method of inhibiting diarrhea in a vertebrate comprising administering the composition of Claim 2.

13. A method of inhibiting diarrhea in a vertebrate comprising administering the composition of Claim 6.

14. The method of Claim 12, wherein said vertebrate is a human.

15. The method of Claim 13, wherein said vertebrate is a human.

16. A feed or food for vertebrates including humans comprising an active agent, wherein the active agent is the synthetic protein or a homolog or a fragment thereof of Claim 1 wherein said feed or food has antisecretory activity.

17. A feed or food for vertebrates comprising an active agent, wherein said active agent is the synthetic polypeptide of Claim 5 and wherein said feed or food has antisecretory activity.

18. A feed additive comprising the synthetic protein or homolog or fragment thereof of Claim 1, wherein said feed additive has antisecretory activity.

19. A feed additive comprising the synthetic polypeptide of Claim 5, wherein said feed additive has antisecretory activity.